

AMENDMENTS TO THE SPECIFICATION:

Please amend the specification as follows:

On page 1, after the title, please add the following paragraph:

This application is a national stage filing under 35 U.S.C. § 371 of International Application No. PCT/ CH2004/000562, filed on September 8, 2004, which claims priority to European Application No. 03405690.3, filed on September 22, 2003, the disclosures of which are expressly incorporated herein by reference to their entireties.

On page 1, before the paragraph beginning on line 3, please add the following heading:

TECHNICAL FIELD

On page 1, amend the paragraph beginning on line 3 as follows:

The present ~~invention~~ disclosure relates to mechanical horology. ~~It is,~~ and more particularly ~~concerned with,~~ to a wheel of an escapement mechanism of the type that receives energy from a barrel spring and drives a balance ~~by means of~~ with a lever in which pallets are set. The escape wheel ~~is provided with~~ may include teeth constructed so as to engage with the pallets of the lever.

On page 1, before the paragraph beginning on line 11, please add the following heading:

BACKGROUND

On page 1, amend the paragraph beginning on line 11 as follows:

The interaction between the pallets and the teeth of the escape wheel produces may produce friction. Without lubrication of the regions of contact between these parts, they may wear down prematurely. The efficiency of the escapement is may also be noticeably affected by this friction.

On page 1, amend the paragraph beginning on line 17 as follows:

The lubrication problem is one that is may be particularly difficult to solve. Specifically, the oil used must be stable, and in particular must resist oxidation and not be affected by changes of temperature, and, above Above all, the oil must stay in the contact region without spreading over the wheel. This is because the forces involved are may be very small, which means that the oil must be fluid. Since the shocks produced by the impulses are may be large, there is may be a significant risk of the oil dispersing and spreading across the wheel, and even getting into the gearing, which is may be highly prejudicial.

On page 1, amend the paragraph beginning on line 29 as follows:

One of the methods usually adopted to solve this the above-mentioned lubrication problem is presented in Figures 1a and 1b. ~~The teeth Teeth 6 of the an~~ escape wheel end in a beveled plane 8 forming an obtuse angle with ~~the a~~ plane of the wheel. Oil deposited on the plane 8 adheres to this plane and, because of surface tension, spreads onto ~~the an~~ end 9 of the tooth which defines the region of contact with ~~the~~ pallets of ~~the a~~ lever.

On page 1, before the paragraph beginning on line 38, please add the following heading:

SUMMARY OF THE INVENTION

On page 1, amend the paragraph beginning on line 38 as follows:

~~It is an~~ An object of the present invention is to improve the containment of the lubricant in the region of contact between the escape wheel and the pallets of the lever, and ~~particularly~~ to simplify the construction of the wheel.

On page 2, amend the paragraph beginning on line 6 as follows:

More specifically, an embodiment of the invention relates to an escape wheel whose direction of rotation ~~defines~~ may define an upstream direction and a downstream direction, ~~said.~~ The wheel ~~being~~ may be designed to form part of an escapement mechanism, and ~~being~~ may be formed by: a hub; a felly connected to the hub; and teeth arranged radially on ~~said~~ the felly, ~~said~~ the teeth having a root ending in a finger.

On page 2, amend the paragraph beginning on line 14 as follows:

According to an embodiment of the invention, the finger ~~comprises~~ may include a first part of thickness ~~[[E]]~~ E situated towards the felly, and a second part of lesser thickness ~~[[e]]~~ e situated towards the end of the finger, ~~the~~ The boundary between these two parts ~~defining~~ may define a threshold ~~which~~ that, with the adjacent face of the second part, forms an oil holder.

On page 2, amend the paragraph beginning on line 21 as follows:

Advantageously, the thickness of the second part is may be approximately equal to one-half of that of the first part.

On page 2, amend the paragraph beginning on line 25 as follows:

The distance between the threshold and the end of the tooth is may be approximately equal to the thickness of the wheel.

On page 2, amend the paragraph beginning on line 29 as follows:

The wheel may also include has at least one or other of the following features:

- [[-]]] the wall of the oil holder formed by said threshold is concave;
- [[-]]] the wall of the oil holder has interruptions;
- [[-]]] the second part comprises a cavity formed in its thickness; and
- [[-]]] the second part carries a projection extending in the thickness of the wheel.

On page 3, before the paragraph beginning on line 1, please add the following heading:

BRIEF DESCRIPTION OF THE DRAWINGS

On page 3, amend the paragraph beginning on line 1 as follows:

Other features of the invention ~~will become clearer in the light of~~ are included in the following description, which refers to the accompanying drawing drawings in which:

Figures 1a and 1b are enlarged views of teeth of an escape wheel;

- [[[-]]] Figure 2 is a top view of an escape wheel; and
- [[[-]]] Figures 3a, 3b, 4, 5, 6 and 7 are enlarged views of teeth of the escape wheel
in according to different exemplary embodiments of the invention.

On page 3, before the paragraph beginning on line 9, please add the following heading:

DETAILED DESCRIPTION

On page 3, amend the paragraph beginning on line 9 as follows:

Figure 2 shows an escape wheel 10 ~~formed by~~: including, for example, a hub 12; four coplanar equal-length arms 14 arranged orthogonally on the hub 12; a felly 16 supported by the arms 14; and, ~~situated around the periphery of the wheel, continuous with the felly 16,~~ teeth 18, of which there are typically may be twenty, situated around the periphery of the wheel, continuous with the felly 16. The dimensions of the wheel may vary depending on the caliber in which it is used.

On page 3, amend the paragraph beginning on line 17 as follows:

The escape wheel illustrated in the example of Figure 2 operates by turning clockwise. This direction of rotation defines, for each tooth, ~~an upstream a downstream~~ side oriented in the forward direction of the wheel, and ~~a downstream an upstream~~ side.

On page 3, amend the paragraph beginning on line 22 as follows:

In a Swiss escapement mechanism, ~~which is much the most widely used~~, the teeth 18 ~~have~~ may include a triangular root 20 (Figure 3a) whose end is truncated and replaced by a finger 22 formed by a base 23 and a nose 24. More precisely, the nose 24 has, on the upstream downstream side, a part 25 in line with the edge of the base 23, and, on the downstream upstream side, a bevel 26 that is continued by a straight part 28 parallel to the part 25.

On page 3, amend the paragraph beginning on line 31 as follows:

According to an exemplary embodiment of the invention, and as shown in Figure 3b, the finger 22 ~~comprises~~ may include a first part 22a situated towards and of the same thickness as the felly 16, and a second part 22b of lesser thickness situated towards the end of the finger. The boundary between these two parts ~~defines~~ may define a threshold 22c. Typically In one embodiment, the thickness of the part 22a is 0.15 mm, and that of the part 22b is 0.08 mm.

On page 4, amend the paragraph beginning on line 2 as follows:

The second part 22b and the threshold 22c may form a limited space that acts as an oil holder. In this way the space intended to retain the oil is may be well defined. The amount of lubricant available can thus be increased without the risk of contamination. Moreover, this space ~~retains~~ may retain the lubricant during the shock of the escape wheel against the pallet, at the end of the impulse.

On page 4, amend the paragraph beginning on line 10 as follows:

~~In a first variant~~ an exemplary embodiment shown in Figure 3, the threshold 22c forms a concave wall ~~which connects~~ that may connect, in a quarter-circle arc, a point [[A]] “A” situated on the ~~downstream upstream~~ side, at the junction of the base 23 with the bevel 26, and a point [[B]] “B” situated on the ~~upstream downstream~~ side of the base 23.

On page 4, amend the paragraph beginning on line 16 as follows:

~~In a second variant~~ another exemplary embodiment shown in Figure 4, the threshold 22c is parallel to the end of the tooth 18 and passes through a point [[C]] “C” situated on the bevel 26.

On page 4, amend the paragraph beginning on line 20 as follows:

~~In a third variant~~ yet another exemplary embodiment (Figure 5), the threshold 22c connects a point [[D]] “D” situated on the upstream side on the base 23, and a point [[E]] “E” situated on the downstream side on a line approximately tangent to a circle passing through the center of the wheel.

On page 4, amend the paragraph beginning on line 26 as follows:

Figure 6 shows a fourth variant yet another exemplary embodiment in which the threshold 22c defines a concave space that connects a point [[F]] “F” that is situated at the junction of the base 23 with the bevel 26, and a point [[G]] “G” that is situated at the same distance from the end of the finger 22 as the point [[F]] “F”.

On page 4, amend the paragraph beginning on line 32 as follows:

~~Lastly~~Additionally, Figure 7 shows yet another ~~variant~~ exemplary embodiment of the invention. The threshold 22c connects a point [[H]] "H" that may be situated at the junction of the bevel 26 with the straight part 28 that ends the nose 24, and a point [[L]] "I" that may be situated at the same distance from the end of the finger 22 as the point [[H]] "H". Between these two points the threshold 22c forms may form three concave waves, and divides may divide the width of the finger 22 into three identical recesses. ~~The~~ Thus, the wall formed by the threshold 22c ~~thus has~~ may include interruptions that may further improve oil retention.

On page 5, amend the paragraph beginning on line 5 as follows:

To lubricate the escapement, a drop of oil ~~is usually~~ may be placed on the impulse plane of the entry pallet of the lever, with the lever being stopped. When the escapement begins to function, part of the oil is transferred from the pallet to each of the teeth of the wheel, and from ~~here~~ there to the exit pallet. The oil ~~is~~ may therefore be distributed very quickly and evenly between the different parts of the escapement.

On page 5, amend the paragraph beginning on line 14 as follows:

The lubricant deposited on the lower part 22b of the finger 22 ~~has~~ may have a surface tension such that it can spread onto the end of the nose 24, particularly and onto the region of contact with the lever pallets, whereas the height and shape of the threshold 22c may prevent it from spreading onto the escape wheel and through the

watch movement. ~~The Thus, the lower part 22a 22b and the threshold 22c thus may~~
form an oil holder as an integral part of each of the teeth of the wheel 10.

On page 6, amend the heading on line 2 as follows:

CLAIMS WHAT IS CLAIMED IS: